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THE INTERNATIONAL BIOLOGICAL PROGRAMME
IN THE SUBARCTIC AND ARCTIC REGIONS OF CANADA
AND ITS RELATIONSHIP TO THE BROADER ASPECT
OF NORTHERN WILDERNESS CONSERVATION

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BACKGROUND TO THE INTERNATIONAL BIOLOGICAL PROGRAMME

The International Biological Programme was a cooperative effort on the part of the International Council of Scientific Unions, and was sponsored by the United Nations. ¹⁹⁶⁴ Its goals and purposes were first ratified during the first general assembly of the Special Committee for the International Biological Programme in Paris during 1964. The purpose and goals of the programme were essentially to establish the necessary scientific basis for a comprehensive world programme of preservation of areas of biological or physiological importance for science.

In 1965 a Canadian committee for the International Biological Programme was struck as part of Canada's contribution to the broader United Nations programme. The Canadian committee then established a subcommittee under the chairmanship of W. A. Fuller of the University of Alberta, to organize a nationwide programme to conserve terrestrial (CT) ecosystems. This subcommittee divided Canada into ten regions for the purpose of establishing consulting panels of scientists in each. The scientists were drawn from industry, government and universities as well as interested private citizens. By 1968 the first eight panels were operational. In 1969, the two Arctic panels were established: Panel 9 dealing with the eastern Arctic and Panel 10 charged with the role of surveying the western Arctic. Panel 10 later modified its sphere of interest to deal basically with subarctic sites in the Yukon and Northwest Territories.

Each IBP-CT consulting panel consisted of two cochairmen, one from a university and the other from a federal or provincial government

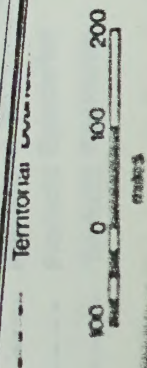
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post. A number of experts from the biological and physical sciences were also included in the advisory panel and covered such disciplines as plant and animal ecology, geology, palaeontology, soil science, range and wildlife management, fisheries, forestry, geography, limnology and chemistry.

In the ensuing years from 1969 to 1974, when the International Biological Programme officially ended, a considerable amount of data was collected, tabulated and integrated to document the diversity of Canadian ecosystems.

When the United Nations-sponsored IB Programme officially terminated in 1974, there was yet much work to be accomplished in bringing together all the information amassed during the IBP's active life. To assist in this integrative task the federal government, through its scientific agency, the National Research Council of Canada, established the Associate Committee on Ecological Reserves (ACER). The Associate Committee's mandate was to supply the administrative follow-up to the IBP. ACER will officially terminate March 31, 1978 and its role will be continued by the federal Department of the Environment. Both the federal and provincial governments have seen fit to continue pursuing the ideals and goals of the International Biological Programme. Active work will continue in all panels across the country until some of the proposed ecological sites are established as ecological reserves or their equivalents with official status.

It is important to note that Canada, when it committed itself



- 1. North Slope & Mackenzie District
- 2. Yukon District
- 3. Northwest Territories
- 4. Yukon & Northwest Territories

to the International Biological Programme, pushed ahead with great ardour and has served as one of the world's model countries. Two provinces, Quebec and British Columbia, now have official legislation under which ecological reserves are set aside, management plans developed, and the appropriate level of protection ensured. Ontario is in the process of incorporating its ecological reserve sites under existing provincial legislation and the Saskatchewan government is presently developing a separate ecological reserves act similar to that already in existence in British Columbia. The federal government, which has official responsibility for legislation in the Yukon and Northwest Territories, presently has within the Department of Indian Affairs and Northern Development an Ecological Reserves Working Group consisting of representatives from several of its appropriate departments who deal with the question of ecological reserves in the Arctic and subarctic. The federal government has not enacted legislation governing ecological sites for the two northern panels; however, it does recognize them under Territorial and Use Regulations.

Now, after the completion of a rather lengthy preamble on the ground of the International Biological Programme, I would like to begin with the main purpose of this paper. Specifically, I will give you up to date on the activities of the northern ecological panels, fleshing out their goals and responsibilities, and the purposes of the ecological reserves they have proposed, provide of the criteria utilized for the selection of ecological

REGIONS

- 1 Western High Arctic
- 2 Eastern High Arctic
- 3 Western Low Arctic Islands
- 4 North Slope & Mackenzie District
- 5 Keewatin District

- International Boundaries
- Provincial Boundaries
- Territorial Boundaries

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sites in the north, and present maps of the proposed ecological sites and a very brief description of each site. Finally, because the IBP is not the only interested party concerned with northern conservation I will address the broader issue of northern conservation.

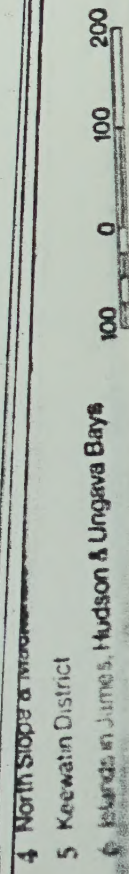
THE NORTHERN ECOLOGICAL RESERVES COMMITTEES

As a result of work by scientists from governments, industries, and universities across the country who are knowledgeable about subarctic ecosystems, the Subarctic Ecological Reserves Committee (Panel 10) has identified and documented 81 suitable ecological sites in the Northwest Territories and Yukon. Some of these sites were selected because of unique features while others were proposed because they were representative of typical major ecosystems. The Arctic Tundra Panel (Panel 9) has proposed 71 ecological sites for similar reasons.

Goals and Responsibilities

The goals and responsibilities set out for the northern panels, which cover all lands in the Yukon and Northwest Territories, can be summarized as follows (Beckel 1975):

1. Location and description of representative and/or unique examples of natural subarctic ecosystems in cooperation with local residents, industries and the federal, Northwest Territories and Yukon governments.
2. Demonstration of the biological value of each potential site.



3. Aiding the territorial and federal governments in developing guidelines for management and recognition of these areas as ecological sites.

These were the mandates set out for the northern panels by the National Research Council of Canada. Efforts to fulfill this mandate are still in progress and in all likelihood will continue for a considerable time in the future until individual management plans are completed and operational for the ecological sites. Although the northern panel's work was in part sponsored by the federal government, the panels are independent organizations, not government agencies.

Purposes of the Ecological Reserve Sites

Numerous papers and exhaustive lists have been prepared which document the various purposes and uses of ecological reserves, but for the purposes of this paper they may be summarized as falling into one of the following five categories:

1. Preservation of representative examples of significant natural ecosystems for comparison with those managed by man.
2. Provision of educational and research areas for the scientific study of successional trends, evolution of species, inter-and intraspecific relationships, and the balancing forces of relatively undisturbed ecosystems.
3. Provision of educational and research areas for the scientific study of other aspects of the natural environment

such as meteorological, geomorphological, and pedological processes.

4. Provision of educational and research areas for the scientific study of recovery processes in ecosystems which have been modified by man.
5. Provision of reservoirs of natural living material and a protected gene pool for native and/or endangered species of plants and animals and their habitats.

One could possibly say that these purposes do not apply to areas so little known as a great deal of Canada's northern region. Twenty years ago the whole notion of ecological sites in Canada's northern territories would have seemed trite and impertinent; ten years ago some concern was voiced. Today, with the continually increasing pressure to develop the northern resources, Canada's northern regions are far less remote and the chances for large tracts of pristine nature to exist are diminishing yearly. Today, the notion of ecological reserves no longer seems trite and impertinent but rather, rational and appropriate. Once presently proposed developments and future developments come to the stage of actualization the north will become even less remote; the need for scientific research will become essential for the development of land use and management guidelines and as yardsticks to measure changes wrought by man in the northern ecosystems. Many of our present natural ecosystems will be converted to "natural resource ecosystems" which differ from the natural ecosystem in that they

are managed to the best of man's ability to produce goods and services for his use. How well we are able to maximize the production of goods and services while also maintaining a balanced system will reflect how well we understand the function of "natural ecosystems".

At this point it seems appropriate to allude to the size of many of the proposed sites. Many of the proposed ecological sites in the north are large. Apart from the fact that the large size can readily be justified by our present understanding of the function of biological and physical systems, the large size may not preclude certain forms of land use and development providing the activity will not destroy the purpose for which the reserve was established. What activities are appropriate in the northern reserves will be brought to light as management plans are developed for specific sites. There are very few of the proposed sites which Panel 10 perceives will be necessary to "fence off" and keep sacrosanct from all manner of activity. The goal is to maintain the sites for specific purposes.

Criteria Utilized for the Selection of Ecological Sites in the North

Peterson (1975) points out that:

"... one could very specifically spell out selection criteria for ecological reserves if there were a clear definition of what was being selected and protected. Ecological reserves have been defined in many ways and we have not seen the end of alternative definitions This is a distressing state of affairs for those who

must devise legal protective measures for such areas; for the biologists who will use these outdoor laboratories this lack of a clear definition is not particularly bothersome. . . . biologists have lived with a continuing dialogue on the species concept with no disastrous consequences. On the contrary, differences of opinion have stimulated research and thought."

Let us accept the fact that we have not devised absolute criteria upon which to select ecological sites, and look at the initial criteria and guidelines set out by the International Biological Programme in 1968. These were the major guidelines by which ecological sites were selected in the northern region.

The 1968 guidelines (Nicholson 1968) recommend that:

1. The areas should, taken together, contain adequate and manageable samples of the entire range of major ecological formations or ecosystems in the world and indicate the degree of variation in each.
2. The series should include sites which, although they do not qualify for inclusion under the first criterion, support species of plants and animals of outstanding interest or great rarity.
3. The series should include sites which are of scientific interest because of human management to which they have been subjected, even if this has led to a more or less far-reaching modification of the biota.

4. The series should include sites which are important because they have been the scene of detailed and well-documented research.
5. The series should include sites which contain for example, deposits of peat, lignite, or sediment from which information may be obtained about past vegetational or climatic changes, and also sites which are of special palaeontological importance.
6. The series should include sites which are of special physiographic or geomorphological interest and which represent unusual habitats.

In selecting this series the following general considerations will also be borne in mind:

1. Areas should be included whether or not they appear to be in immediate threat. Experience has shown that no reliance can be placed on the survival by good fortune of even the remotest areas, and a comprehensive series of sites which are required for science and education must be selected and preserved if further irreplaceable material is not to be lost.
2. Other things being equal, preference should be given to sites which can be conveniently worked by existing or proposed research institutions, to sites that can be supervised and managed effectively, and to sites least likely to be affected by adverse neighbouring development

and by air and water pollution.

3. Areas must be of adequate size to support viable populations of the species which characterize them and for which they were established.
4. Research areas must also be large enough to allow for the increasing amount of land demanded by modern field experimental research, especially as disturbance and damage arising from such research often modifies these areas and hence requires resting or replacement of such sites from time to time.
5. While considerations of amenities and attractiveness to tourists should not determine the selection of an area for protection for scientific purposes, there are sometimes advantages in locating scientific reserves near or within areas of high landscape value, as it then becomes more justifiable to protect a larger, more viable unit.

Future Direction of the Subarctic Panel

A great amount of work still lies ahead for those involved in dealing with ecological sites. It was a pleasant task to survey, research and propose ecological sites, but now we must involve ourselves in the task of dealing with the legal frameworks and aspects of developing reserve management and land use guidelines. It is in these areas that we will place our emphasis in the future.

Guidelines must be developed for the overall administration and management of ecological reserve sites or their equivalents, and

specific management programmes must be developed for each individual site. This is a huge task and can only be brought about by coordinated effort by native groups, industry, local residents, and several levels and branches of government and scientists. Boundaries of reserves must be justified and negotiated, purposes for which a reserve was proposed must be articulated in detail, conflicting resource interests must be dealt with and brought to some acceptable compromise where possible, acceptable levels of use identified, protective measures considered, jurisdiction established, and a host of lesser problems contended with.

Our primary effort must now be directed toward acquiring ecological sites legislation, defining the role of native peoples in management of conservation areas, and developing site-specific management plans.

Ecological Sites in Subarctic Canada

The maps and tables included with this paper present the locations and a very brief comment on the salient attributes of each of the proposed ecological sites in arctic Canada. The maps and summary tables presented in appendices A and B are reproduced from *Northern Ecological Sites*, published by the Canadian Committee for the International Biological Programme - Conservation of Terrestrial Biological Communities, Panels 9 and 10, with the assistance of grants from the White Owl Conservation Awards Committee and the Canadian National Sportsman's Show. Other reference works include: *Ecological Sites in Northern Canada* (Nettleship and Smith 1975) and *Ecological Sites in Subarctic Canada* (Beckel 1975).

IBP CANDIDATE ECOLOGICAL SITES IN THE BROADER CONTEXT OF NORTHERN
CONSERVATION

The International Biological Programme (Panels 9 and 10) is only one of the agencies investigating and promoting conservation of selected areas of our northern environment. Other agencies such as national parks are actively pursuing the establishment of several new wilderness parks; the Department of the Environment via the Canadian Wildlife Service has established several bird sanctuaries; and the people of Old Crow have recently submitted a proposal for the development of a large wilderness park on the North Slope to provide for the protection of the Porcupine caribou herd (Grafton Njootli letter to A. R. Thompson, October 14, 1977). The Arctic International Wildlife Range Society has for several years been promoting the establishment of an extensive land base to protect this same caribou herd.

It is apparent that there is great concern for the conservation and protection of northern lands, and a review of proposed sites by various groups involved in conservation quickly indicates that there is much duplication of proposals, with several groups promoting the same area. Mr. Justice Thomas Berger in Volume II of the Mackenzie Valley Pipeline Inquiry (1977) has suggested a good starting point relative to future conservation in the north. He has indicated that in the course of his hearings it became apparent that there is a need for the development of a northern conservation strategy which recognizes the claims of the northern native peoples and the special

characteristics of the northern environment:

"Such a strategy would include not only the setting aside of land and water for scenic, scientific and recreational purposes, but the protection of critical habitat for fish and wildlife, which are essential to the welfare of native people of the North."

More specifically, Mr. Justice Berger has made the following recommendations concerning the issue of northern conservation areas:

- "1. As part of comprehensive planning in Canada's North, the federal government should develop a northern conservation strategy to protect areas of natural or cultural significance. This strategy should comprise inventories of natural and cultural resources, identification of unique and representative areas, and withdrawal and protection of such areas under appropriate legislation.
2. A northern conservation strategy should be implemented by distinguishing the different types of conservation areas and matching the degree of protection to the nature and importance of the resource. Such conservation areas may include wilderness parks, national parks, national marine parks, national landmarks, wildlife areas, wild rivers, historic water routes, historic land trails, ecological reserves, recreation areas, and archaeological and historic sites.
3. There should be full consultation with native people

before lands are withdrawn for any conservation area
in the North."

It seems apparent, considering the scope and depth with which Mr. Justice Berger undertook his inquiry, that these recommendations should be one of the major focal points for discussion during our working group meeting concerning "Parks and Scientific Preserves". Although many northern conservation groups have undertaken extensive consultation with northern peoples before making specific proposals, it is probably safe to assume that Mr. Justice Berger has heard the broadest range of opinions of northern peoples concerning northern conservation.

Although we already have legislation under the National Parks Act and the Canada Wildlife Act and the Territorial Land Use Regulations whereby some measure of protection may be afforded to conservation areas, Mr. Justice Berger has indicated that these statutes, though useful, have weaknesses which could undermine the wilderness concept. In discussing these two acts he indicates that, under the National Parks Act, permission, leases and permits may be granted for a wide range of activities, many of which are incompatible with the wilderness concept and wilderness values; also that a cooperative wildlife sanctuary established under the Canada Wildlife Act would have fundamental limitations with regard to the protection of wilderness. The Act does not provide for the exclusion of development. Considering the limitations of these acts it seems appropriate that we should follow Mr. Justice

Berger's recommendation and undertake the preparation of wilderness legislation which would require an act of Parliament to confer or withdraw. This problem of providing for the long-term existence of wilderness areas is not a new concern to governments. The British Columbia government during the preparation of its "Ecological Reserves Act" (assented to June 13, 1975) perceived this problem and provided a high measure of protection for their reserves. The Quebec government has assented to similar legislation and the Saskatchewan government is preparing a similar act. Let us hope that the federal government will without delay follow the example of some of the provinces and prepare legislation which would allow for protection of federal and territorial lands. Franson (1975) has suggested that when ecological reserves legislation is being drafted, to ensure the establishment and management of ecological reserves it should satisfy the following criteria:

- "1. it must include adequate mechanisms for the selection and reservation of suitable sites and for management and protection of the reserves;
2. it should provide guidance and advice to those who will administer the whole programme and the individual reserve sites;
3. it should provide for continuing input from the scientific and educational community who will use the reserves; and
4. it must assure relatively permanent protection for

the reserves."

It would seem appropriate that item three above be expanded to provide mechanisms whereby input from all interested parties may be considered.

Although wilderness legislation is a highly desirable goal which we must strive for, it is not without some serious drawbacks. Specifically, a mechanism must be developed to provide for interim protection of important wilderness areas prior to their assent by Parliament; otherwise land-based commitments to other interested parties may be made while a wilderness proposal waits for parliamentary approval. Perhaps some modification of the Canada Wildlife Act or the National Parks Act would be appropriate to fill this interim gap. Mr. Justice Berger has suggested that an amendment to the National Parks Act could provide for a new statutory creation: the wilderness park. This may be more expedient than drafting totally new legislation. In the preparation of federal legislation concerning wilderness protection it would seem appropriate that provision should be made for the establishment of an ecological advisory council which would, in addition to including appropriate government members, also include membership from native northerners and scientists from the academic and professional communities at large.

The final issue and one of great importance in the designation of wilderness parks and scientific preserves is the question of native claims. This issue has been one of great concern to those

who have been involved with the proposal of candidate ecological sites in the north (IBP). Many native groups have indicated their approval in principle to the concept of ecological reserves, but the federal government has been reluctant to designate some very important ecological sites prior to settlement of native claims. Mr. Justice Berger has addressed this issue and suggested that withdrawal of conservation lands will not prejudice native claims. Rather he suggests that withdrawal of these lands would protect them from incompatible exploratory and industrial activities until a settlement of native claims is reached. He further suggests that "the government cannot have a double standard; it cannot refuse to withdraw lands on the grounds that it would prejudice claims, while at the same time grant land use and exploration permits and allow consuming uses of the land--alienations that clearly prejudice not only the claims of the native people, but the interest of all Canadians in the preservation of northern lands."

Justice Berger's specific recommendations relative to the native claims aspect of northern conservation are as follows:

" 9. When government withdraws conservation lands, it should formally guarantee to the native people that such withdrawals will not prejudice their claims and that no final disposition of these lands will be made until there is a settlement of claims.

10. Government agencies that have mandates relative to conservation lands must offer guarantees of traditional hunting, trapping and fishing rights within conservation areas.

11. A principal objective of claims negotiations should be the development of joint programmes between the Government of Canada and native people for the management of conservation lands and of renewable resources."

CONCLUDING COMMENT

In this paper I have provided a brief summary of the activities of the International Biological Programme in northern conservation. I hope that during the Canadian Arctic Resources Committee meetings concerning wilderness parks and scientific preserves we can take active steps toward consolidating northern conservation efforts into an integrated programme. Conservation of northern lands is an issue which deserves immediate attention and requires immediate action.

It is a principal objective of this organization to
be the development of 1940 program between the
Government of Canada and other people for the purpose
of conducting joint and of economic activities.

CONCLUSION

In this case I have provided a brief summary of the activities
of the International Technical Institute in various countries.
I hope that during the coming years the Institute will
continue to develop and will be able to provide
such advice and technical assistance to other countries as
may be required. I am sure that the Institute will
be able to do this and will be able to provide
such advice and technical assistance to other countries as
may be required.

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